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ABSTRACT

The purpose of this study is to describe and analyze the performance of Louisiana's potential teachers on the Common Examinations of the National Teacher Examinations (NTE). Scores from 1352 examinees who took the Common Examinations of the NTE in February, 1979, were analyzed. The performance of Louisiana's potential teachers compares favorably with the national performance, both on the Weighted Total, and the Professional Education, Written English Expression, and Literature, Fine Arts, and Social Studies subdivisions. Results indicated a deficiency in Science preparation. The Common Examinations do not effectively discriminate in the four subdivisions. The number of test items in any subdivision does not significantly affect the discriminatory ability of that subdivision. No subdivision is significantly more difficult than any other subdivision. The level of difficulty of the test items does not significantly affect the discriminatory ability of the test items.
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An Analysis of Scores on the Common Examinations
of the National Teacher Examinations of
Candidates for Certification in Louisiana

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In 1978, Louisiana began requiring candidates for initial teacher certification to attain a minimum composite score on the National Teacher Examinations (NTE). This score included both the Common Examinations and the Area Examinations, and ranged from 1,052 to 1,202, depending upon one's major field of study. (70:29) For candidates whose major field of study was Art Education or Industrial Arts Education, no Area Examinations were provided; these candidates were required to score a minimum of 534 on the Common Examinations. (194) In 1979, as a result of the testing mandate, 6,624 people took the NTE in Louisiana. (191) The majority of the 1979 examinees were candidates for initial teacher certification in Louisiana. Not all potential teachers, however, were able to attain the minimum score required for certification. In some Schools of Education, for example, only 3 percent of the candidates taking the NTE attained the minimum scores. (194)

There exists today in Louisiana much controversy as to whether the NTE measures just subject matter knowledge or whether it also measures teaching ability in the classroom. Educational Testing Service stresses that, if the NTE is used as a certification instrument, it should not be the sole criterion for certification. (143) Almost since its creation, however, the NTE has been the object of numerous lawsuits, with charges ranging from race discrimination to lack of validity as a test instrument. The landmark case for use of the NTE as part of the certification requirements was the 1977 Supreme Court case, U. S. v. South Carolina. This case upheld

the legality of the use of the NTE as one criterion for teacher certification, job advancement, and/or salary increment, so long as a validation study was done in each state where the NTE served at least one of the above-stated purposes.

Of the vast amount of research conducted on the scores of the NTE, very little has been conducted using scores of Louisiana examinees. Andrews (36) conducted a study in Louisiana to determine if the NTE was useful for the identification of prospective teachers and concluded that the NTE is a measure of subject-matter knowledge primarily, but is a more accurate measure of secondary subject-matter knowledge than of elementary. This, Andrews concluded, was the only contribution the NTE made to the identification of prospective teachers in the state of Louisiana. (36:359)

Research (203) indicates that there are significant positive correlations between the NTE and one's grade point average (whether in major field or overall grades); and, as Shea's study (198) has indicated, there is some correlation between the NTE score and teaching success in the classroom as measured by the M-Blank. No significant correlations, however, exist between the NTE score and student-teaching grade. (198) Research also indicates that race is an important variable in an examinee's score on the NTE, (132) especially on the General Culture questions of the Common Examinations. Contrary to popular belief, however, years of teaching experience does not lower an examinee's score on the NTE. (133)

Although a number of research studies have been conducted concerning the National Teacher Examinations (37; 39; 40; 59; 60; 61; 62; 186; 76; 132; 145; 89; 90; 91; 92; 93; 94; 95; 97; 100), no

research has been conducted exclusively involving Louisiana examinees on a statewide basis. Follow-up research has not been conducted on the validation process employed by Louisiana to determine if the jury judgment approach has been a realistic way to validate the NTE for Louisiana. No research has been conducted on the NTE Common Examinations to determine the content areas where Louisiana's potential teachers are scoring well and those content areas where the examinees' performances indicate a weakness or subject-matter deficiency. (For a more complete review of literature related to the NTE, see Appendix A.)

The Problem

The purpose of this study was twofold: (1) to describe the performance of Louisiana's potential teachers on the Common Examinations of the National Teacher Examinations (NTE) and (2) to analyze the performance of Louisiana examinees on the Common Examinations of the NTE. This study contained two types of research: a descriptive element and a hypothesis-testing element. The study examined the scores of 1,352 of Louisiana's potential teachers, who had taken the NTE in February, 1979.

To describe the performance of Louisiana's potential teachers on the Common Examinations of the NTE, answers to the following questions were sought:

1. What is the distribution of Louisiana's students' mean scores in relation to the national mean scores on the
 - a. Weighted Common Examinations Total?
 - b. Professional Education subdivision?

- c. Written English Expression subdivision?
- d. Literature, Fine Arts, and Social Studies subdivision?
- e. Science and Mathematics subdivision?

2. What are the content areas of the items on the Common Examinations which discriminate between the high group and the low group in each of the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

3. What are the content areas of the items on the Common Examinations with a high difficulty level, items with a medium difficulty level, and items with a low difficulty level in each of the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

To answer question 1, the means of Louisiana's students' scores were calculated for the Weighted Common Examinations Total (WCET) and for all subdivisions of the Common Examinations. A graph was plotted, which contained both the national means and Louisianians's means on the WCET and all subdivisions of the Common Examinations.

To answer question 2, an item analysis was conducted on the Common Examinations scores of Louisiana's potential teachers. The scores ranked in the top 27 percent of the distribution and those in

the bottom 27 percent were analyzed. Discrimination indices were determined for each item, content area, and subdivision of the Common Examinations. The content areas of the items which significantly discriminated between the high group and the low group were described in terms of the content format outlined by Educational Testing Service.

To answer question 3, an item analysis was conducted on the Common Examinations scores of Louisiana's potential teachers. Difficulty coefficients were determined for each item, content area, and subdivision of the Common Examinations. Each difficulty coefficient was classified as to its level of difficulty. The content areas of the items with a high difficulty level, items with a medium difficulty level, and items with a low difficulty level were described in terms of the format outlined by Educational Testing Service.

To accomplish the second purpose, an analysis of the performance of Louisiana's examinees on the Common Examinations of the NTE, answers to the following questions were sought:

1. What significant difference exists between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations in each of the following:

- a. Weighted Common Examinations Total?
- b. Professional Education subdivision?
- c. Written English Expression subdivision?
- d. Literature, Fine Arts, and Social Studies subdivision?
- e. Science and Mathematics subdivision?

2. What significant difference exists in the number of items that discriminate between the high group and the low group among the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

3. What significant difference exists in the number of high difficulty items, medium difficulty items, and low difficulty items among the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

The hypothesis-testing element of this study analyzed the performance of Louisiana's students on the Common Examinations by exploring the following hypotheses:

1. There is a significant difference between the mean scores of Louisiana's students and mean national norms on a given form of the Common Examinations in each of the following:

- a. Weighted Common Examinations Total;
- b. Professional Education subdivision;
- c. Written English Expression subdivision;
- d. Literature, Fine Arts, and Social Studies subdivision;
- e. Science and Mathematics subdivision.

2. There is a significant difference in the number of items that discriminate between the high group and the low group among the following subdivisions:

- a. Professional Education;
- b. Written English Expression;

- c. Literature, Fine Arts, and Social Studies;
- d. Science and Mathematics.

3. There is a significant difference in the number of high difficulty items, medium difficulty items, and low difficulty items among the following subdivisions:

- a. Professional Education;
- b. Written English Expression;
- c. Literature, Fine Arts, and Social Studies;
- d. Science and Mathematics.

To analyze the performance of Louisiana's potential teachers on the Common Examinations of the NTE, a comparison was made between Louisiana's mean scores and the national mean scores on the particular form of the NTE analyzed. For each area, z scores were computed, and significance was determined by a Table of Proportions of Area Under the Normal Curve. An item analysis was conducted on Louisiana's scores. Discrimination indices and difficulty levels were calculated for each item on the test. A comparison of the number of discriminatory items and the number of high, medium, and low difficulty items was made among the areas of the Common Examinations. The Chi Square technique was used for this comparison. Significance at the .05 level was determined using a Chi Square Table.

This field study was conducted during the 1980 calendar year, analyzing the scores on the Common Examinations for one administration of the NTE to Louisiana examinees. The forced sample of 1,352 examinees had taken the NTE in Louisiana in February, 1979, using Form K-3ANT of the NTE. The examinations were scored by Educational Testing Service, who provided a tape of the test scores (totals and subtotals), along with the content of the items used for that particular form of the test.

Presentation of the data collected for the investigation was organized in the following manner: (1) Description of the performance of Louisiana's potential teachers on the NTE Common Examinations, and (2) Analysis of the performance of Louisiana's potential teachers on the NTE Common Examinations.

Description of the Performance of Louisiana's Potential Teachers on the NTE Common Examinations

This section fulfilled the first purpose of this study: to describe the performance of Louisiana's potential teachers on the Common Examinations of the NTE. Data gathered on the analysis of Louisiana's scores and national scores were used to describe the national performance and Louisiana's performance on the NTE Common Examinations. Scores of 1,352 of Louisiana's students on the Common Examinations were used to describe the content areas which significantly discriminated between those students who scored high on the Common Examinations and those who scored low. Data gathered from scores of Louisiana's students on the Common Examinations were also used to describe the content areas of high difficulty, those of medium difficulty, and those of low difficulty.

The following subdivisions were utilized for presentation of data of this section: (1) Distribution of Louisiana and National Means on the Common Examinations of the NTE; (2) Discrimination of Content Areas of Items on the Common Examinations of the NTE; and (3) Difficulty Level of Content Areas of Items on the Common Examinations of the NTE.

Distribution of Louisiana and National Means on
the Common Examinations of the NTE

Data were collected to answer question 1: what is the distribution of Louisiana's students' mean scores in relation to the national mean scores on the

- a. Weighted Common Examinations Total?
- b. Professional Education subdivision?
- c. Written English Expression subdivision?
- d. Literature, Fine Arts, and Social Studies subdivision?
- e. Science and Mathematics subdivision?

The 1979 weighted mean scores of Louisiana's students and the 1979 weighted national mean scores were calculated, as indicated in Table 1.

The 1979 national weighted mean scores on the Common Examinations of the NTE, with 74,223 examinees, were as follows: Professional Education subdivision, 220.00; Written English Expression subdivision, 55.80; Literature, Fine Arts, and Social Studies subdivision, 136.75; Science and Mathematics subdivision, 141.75; and Weighted Common Examinations Total (WCET), 556.30. The weighted mean scores of Louisiana's potential teachers on the Common Examinations, with 1,352 examinees, were as follows: Professional Education subdivision, 238.48; Written English Expression subdivision, 59.57; Literature, Fine Arts, and Social Studies subdivision, 143.14; Science and Mathematics subdivision, 121.16; and WCET, 562.35.

Louisiana's mean scores were higher than the national mean scores in all subdivisions of the Common Examinations, except in the subdivision Science and Mathematics, as indicated in Table 1 and as graphically depicted in Figure 1. Louisiana's potential teachers

Table 1

Summary of 1979 National Mean Scores and Louisiana's
Mean Scores on the Common Examinations of the
NTE and Its Subdivisions*

Source of Scores	Number of Examinees	Mean PE Scores	Mean WEE Scores	Mean L, FA, SS Scores	Mean S & M Scores	Mean WCET Scores
National	74,223	222.00	55.80	136.75	141.75	556.30
Louisiana	1,352	238.48	59.57	143.14	121.16	562.35

*Scores reported in Weighted Form

CODE KEY

PE- - - - Professional Education subdivision
WEE - - - - Written English Expression subdivision
L, FA, SS - Literature, Fine Arts, & Social Studies subdivision
S & M - - - Science & Mathematics subdivision
WCET- - - - Weighted Common Examinations Total

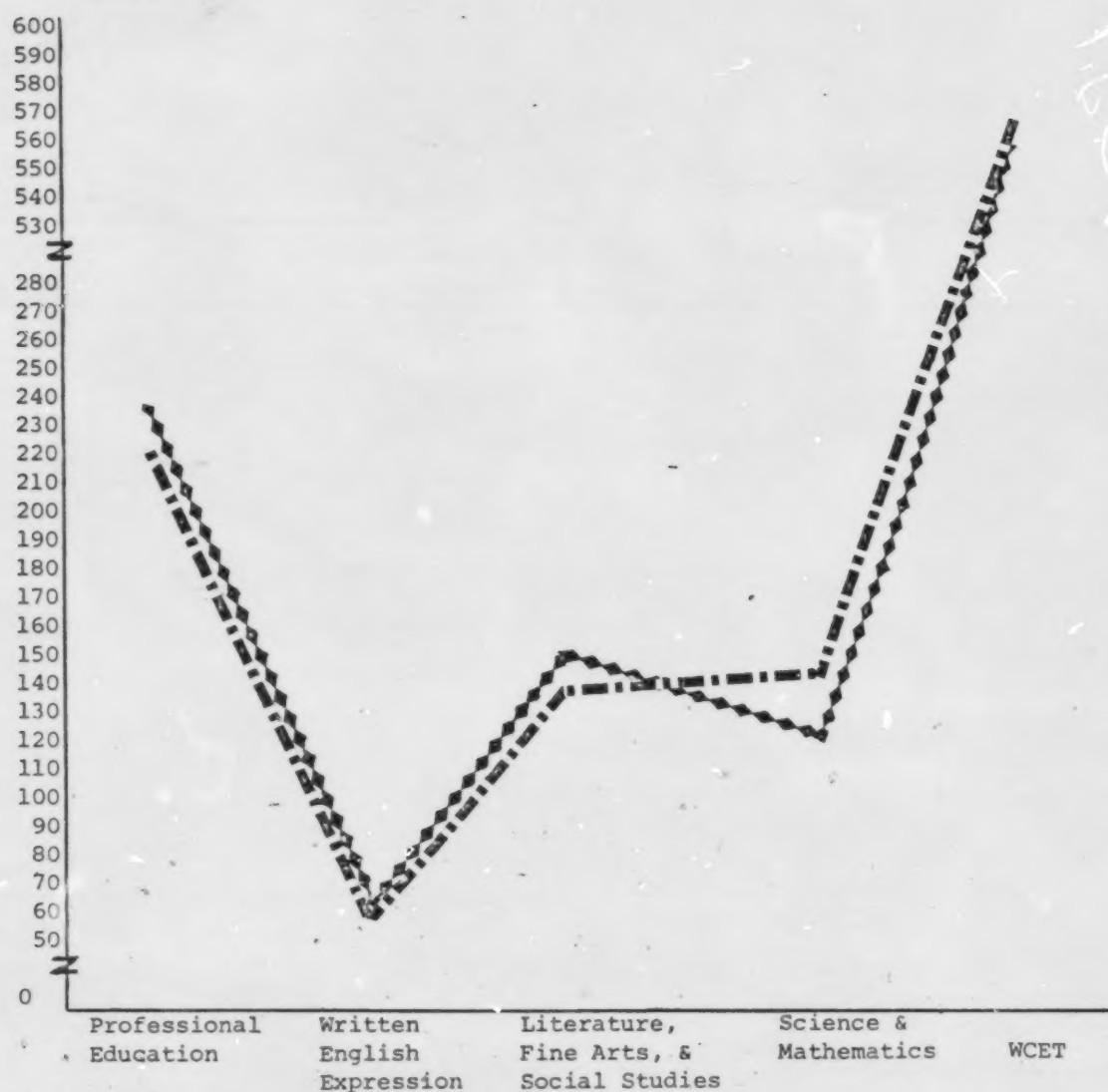


Figure 1

Graphic Depiction of 1979 National Mean Scores and Louisiana's Mean Scores on the Common Examinations of the NTE and Its Subdivisions*

*Scores reported in Weighted Form

-----National Scores

◆◆◆◆◆Louisiana Scores

scored above the national mean scores in the following subdivisions: Professional Education; Written English Expression; and Literature, Fine Arts, and Social Studies. Louisiana's mean scores were higher than the national mean scores on the Weighted Common Examinations Total.

Discrimination of Content Areas of Items
on the Common Examinations of the NTE

Data were collected and tabulated to answer question 2: what are the content areas of the items on the Common Examinations which discriminate between the high group and the low group in each of the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

An item analysis was conducted on the responses of the sample, using the Statistical Analysis System (SAS) computer program. The item analysis produced first the rank order of the students' scores, starting with the highest scores and listing the questions answered correctly by each examinee. The Weighted Common Examinations Total (WCET) scores ranked in the top 27 percent and those in the bottom 27 percent were used for this study. A discrimination index was calculated for each item, content area, and subdivision of the Common Examinations by means of the phi coefficient of correlation, which represented that item's discrimination index.

Professional Education. Discrimination indices were computed for the Professional Education subdivision and for the sixteen content

areas of the Professional Education section, as indicated in Table 2. Phi coefficients, used as discrimination indices in item analysis, were internally determined in the computer program. Any discrimination index that was .40 or higher was determined to be significant at the .05 level. The 110 items in the Professional Education subdivision were grouped under content headings outlined by Educational Testing Service.

Analysis of the data indicated that neither the Professional Education subdivision (.3196) nor any of its sixteen content areas discriminated significantly between students in the high group and students in the low group, as depicted in Table 2.

The discrimination indices ranged from a low of .2366 for the area "Reporting pupil progress" to a high of .3750 for "Relationship of growth and development to learning." The content areas, with the number of items for each area and their mean discrimination indices, in order from the highest to lowest, were as follows: Relationship of growth and development to learning (.3750), with six items; Controlling behavioral problems (.3631), with eight items; Approaches to concept and skill development (.3559), with ten items; Theories of teaching (.3449), with five items; Statistics (.3362), with six items; Community and professional relationships (.3303), with five items; Daily evaluation (.3252), with four items; Principles of learning (.3213), with six items; Kinds of tests (.3198), with seven items; Social system of classroom (.3184), with five items; Significant historical events (.3165), with eleven items; Organizational patterns (.3129), with six items; Social/cultural impact on learning (.3016), with five items; Learning principles specifically applied

Table 2

Summary of Number of Items, Mean Discrimination Indices, and Significance Level of the Content Areas for the Professional Education Subdivision of the Common Examinations of the NTE*

Content Area	No. Test Items	Mean Disc. Index	p**
Significant historical events in American public education and awareness of contemporary problems, issues, and trends (Significant historical events)	11	.3165	n/s**
Relationship of objectives of the larger society to education, including the contributions of philosophers (Relationship to societal objectives)	10	.2737	n/s**
Relationship among the teacher, the school, the community, and the profession (Community and professional relationships)	5	.3303	n/s**
Relationship of growth and developmental characteristics of children to learning and instruction (Relationship of growth and development to learning)	6	.3750	n/s**

Table 2 (continued)

Knowledge of curriculum organization and trends, school/classroom organizational patterns, and their applications to learning and instruction (Organizational patterns)	6	.3129	n/s**
Knowledge of basic concepts and principles of learning and their relationship to instruction (Principles of learning)	6	.3218	n/s**
Knowledge of the impact of social-cultural variables on learning and instruction (Social/cultural impact on learning)	5	.3016	n/s**
Knowledge of the social system of the classroom, its implications for learning, and of the impact of teacher characteristics upon learning (Social system of classroom)	5	.3184	n/s**
Knowledge of current strategies and theories of teaching and approaches to instruction (Theories of teaching)	5	.3449	n/s**
Knowledge of appropriate ways of maintaining classroom control and ways of dealing with behavioral problems (Controlling behavioral problems)	8	.3631	n/s**

Table 2 (continued)

Approaches to the development of concepts and of intellectual skills and abilities (Approaches to concept and skill development)	10	.3559	n/s**
Applications of concepts and principles of learning and teaching to specific instructional problems (Learning principles specifically applied)	13	.2812	n/s**
Applications of principles of evaluation to daily instructional procedures (Daily evaluation)	4	.3252	n/s**
Characteristics and roles of various kinds of tests (Kinds of tests)	7	.3198	n/s**
Knowledge and use of basic statistical terms (Statistics)	6	.3362	n/s**
Reporting pupil progress to parents (Reporting progress)	3	.2366	n/s**
PROFESSIONAL EDUCATION SUBDIVISION	110	.3196	n/s**

*This subdivision is weighted 4.0 in determining WCET.

**Value needed for significance at the .05 level was .40 or higher.

(.2812), with thirteen items; Relationship to societal objectives (.2737), with ten items; and Reporting progress (.2366), with three items. In determining a student's WCET score, the subdivision Professional Education is weighted 4.0.

Written English Expression. The forty-five items in the Written English Expression subdivision were grouped under content headings outlined by Educational Testing Service. Phi coefficients, used as discrimination indices in item analysis, were internally determined in the computer program. Any discrimination index that was .40 or higher was determined to be significant at the .05 level. Discrimination indices were computed for the Written English Expression subdivision and for the two content areas of this section, as indicated in Table 3.

Table 3

Summary of Number of Items, Mean Discrimination Indices, and Significance Level of the Content Areas for the Written English Expression Subdivision of the Common Examinations of the NTE*

Content Area	No. Test Items	Mean Disc. Index	p**
Usage	25	.3674	n/s**
Sentence correction	20	.3733	n/s**
WRITTEN ENGLISH EXPRESSION SUBDIVISION	45	.3702	n/s**

*This subdivision is weighted 1.0 in determining WCET.

**Value needed for significance at the .05 level was .40 or higher.

Analysis of the data for the Written English Expression subdivision, as depicted in Table 3, indicated that neither the Written English Expression subdivision (.3702), with 45 items, nor either of its two content areas discriminated significantly between students in the high group and students in the low group. The mean discrimination index for the area "Usage," with twenty-five items, was .3674. The content area "Sentence correction," with twenty items, had a mean discrimination index of .3733. In determining a student's WCET score, the subdivision Written English Expression is weighted 1.0.

Literature, Fine Arts, and Social Studies. The sixty-five items in the Literature, Fine Arts, and Social Studies subdivision were grouped under content headings outlined by Educational Testing Service. Phi coefficients, used as discrimination indices in item analysis, were internally determined in the computer program. Any discrimination index of .40 or higher was determined to be significant at the .05 level. Discrimination indices were computed for the Literature, Fine Arts, and Social Studies subdivision and for the content areas of this section, as indicated in Table 4.

Analysis of the data for the Literature, Fine Arts, and Social Studies subdivision, as depicted in Table 4, indicated that neither the Literature, Fine Arts, and Social Studies subdivision (.3355), with 65 items, nor any of the social studies content areas significantly discriminated between students in the high group and students in the low group. The mean discrimination indices of the social studies content areas, each area containing five items, were as follows:

Table 4

Summary of Number of Items, Mean Discrimination Indices, and
Significance Level of the Content Areas for the
Literature, Fine Arts, and Social Studies
Subdivision of the Common
Examinations of the NTE*

Content Area	No. Test Items	Mean Disc. Index	p**
Literature	20	.4173	.05
Music	6	.4274	.05
Art	9	.3978	n/s**
American history	5	.2628	n/s**
World history	5	.3419	n/s**
Geography	5	.3716	n/s**
Sociology	5	.3235	n/s**
Political science	5	.2050	n/s**
Economics	5	.2722	n/s**
LITERATURE, FINE ARTS, AND SOCIAL STUDIES SUBDIVISION	65	.3355	n/s**

*This subdivision is weighted 2.5 in determining WCET.

**Value needed for significance at the .05 level was .40 or higher.

Political science (.2050); American history (.2628); Economics (.2722); Sociology (.3235); World history (.3419); and Geography (.3716).

The content area Art, with nine items, had a mean discrimination index of .3978. The content areas Literature (.4173), with 20 items, and Music (.4274), with 6 items, significantly discriminated at the .05 level between the high and low groups. In determining a student's WCET score, the subdivision Literature, Fine Arts, and Social Studies is weighted 2.5.

Science and Mathematics. The fifty items in the Science and Mathematics subdivision were grouped under content headings outlined by Educational Testing Service. Phi coefficients, used as discrimination indices in item analysis, were internally determined in the computer program. Any discrimination index that was .40 or higher was determined to be significant at the .05 level. Discrimination indices were computed for the Science and Mathematics subdivision and for the content areas of this section, as indicated in Table 5.

Analysis of the data for the Science and Mathematics subdivision, as depicted in Table 5, indicated that four content areas significantly discriminated between the high and low groups at the .05 level: Meteorology (.4390), with three items; Arithmetic operations (.5070), with two items; Simple arithmetic word problems (.4162), with seven items; and Measurement (.4888), with five items. Neither the Science and Mathematics subdivision (.3840) nor any of the science content areas except Meteorology significantly discriminated between students in the high group and students in the low group. The mean discrimination indices for the remaining science content areas, with the number of items in each area, were as follows:

Table 5

Summary of Number of Items, Mean Discrimination Indices, and
Significance Level of the Content Areas of the Science
and Mathematics Subdivision of the Common
Examinations of the NTE*

Content Area	No. Test Items	Mean Disc. Index	p**
Astronomy	2	.3655	n/s**
Biology	8	.3353	n/s**
Chemistry	7	.2633	n/s**
Geology	3	.3829	n/s**
Physics	7	.2926	n/s**
Meteorology	3	.4390	.05
Arithmetic operations	2	.5070	.05
Simple arithmetic word problems	7	.4162	.05
Measurement	5	.4888	.05
Elementary algebra	6	.3498	n/s**
SCIENCE AND MATHEMATICS SUBDIVISION	50	.3840	n/s**

*This subdivision is weighted 2.5 in determining WCET.

**Value needed for significance at the .05 level was .40 or higher.

Chemistry (.2633), with seven items; Physics (.2926), with seven items; Biology (.3353), with eight items; Astronomy (.3655), with two items; and Geology (.3829), with three items. The content area Elementary algebra, with six items, had a mean discrimination index of .3498. In determining a student's WCET score, the subdivision Science and Mathematics is weighted 2.5.

Difficulty Level of Content Areas of Items on
the Common Examinations of the NTE

Data were collected and tabulated to answer question 3: what are the content areas of the items on the Common Examinations with a high difficulty level, items with a medium difficulty level, and items with a low difficulty level in each of the following subdivisions:

- a. Professional Education?
- b. Written English Expression?
- c. Literature, Fine Arts, and Social Studies?
- d. Science and Mathematics?

An item analysis was conducted on the responses of the sample, using the Statistical Analysis System (SAS) computer program. The item analysis produced first the rank order of the students' scores, starting with the highest scores and listing the questions answered correctly by each examinee. Scores of 1,352 examinees were used to determine the mean difficulty coefficients for each item, content area, and subdivision of the Common Examinations of the NTE. A difficulty level was determined for each item, content area, and subdivision of the Common Examinations by classifying each mean difficulty coefficient into the categories of high difficulty, medium

difficulty, and low difficulty. High difficulty was a mean difficulty coefficient of less than .40. Medium difficulty was a mean difficulty coefficient of .40 or greater, but less than .60. Low difficulty was a mean difficulty coefficient of .60 or greater.

Professional Education. The 110 items in the Professional Education subdivision were grouped under content headings outlined by Educational Testing Service. Difficulty coefficients were computed for the Professional Education subdivision and for the sixteen content areas of the Professional Education section, as indicated in Table 6. Analysis of the data indicated that the subdivision Professional Education (.4314) was a medium difficulty level, as depicted in Table 6. Mean difficulty coefficients ranged from .1657 for the area "Organizational patterns" to .5955 for the area "Theories of teaching."

Content areas, with the number of items in each area, of the Professional Education section reflecting high difficulty were as follows: Organizational patterns (.1657), with six items; Significant historical events (.2179), with eleven items; Learning principles specifically applied (.3597), with thirteen items; Social/cultural impact on learning (.3870), with five items; and Principles of learning (.3930), with six items. Those content areas, with the number of items in each area, reflecting medium difficulty, were as follows: Relationship to societal objectives (.4048), with ten items; Relationship of growth and development to learning (.4116), with six items; Reporting progress (.4123), with three items; Kinds of tests (.4309), with seven items; Approaches to concept and skill development (.4323), with ten items; Statistics (.4435), with six items; Community

Table 6

Summary of Number of Items, Mean Difficulty Coefficients, and Difficulty Levels of the Content Areas for the Professional Education Subdivision of the Common Examinations of the NTE*

Content Area	No. Test Items	Mean Diff. Coeff.	Level of Difficulty
Significant historical events in American public education and awareness of contemporary problems, issues, and trends (Significant historical events)	11	.2179	High
Relationship of objectives of the larger society to education, including the contributions of philosophers (Relationship to societal objectives)	10	.4048	Medium
Relationship among the teacher, the school, the community, and the profession (Community and professional relationships)	5	.5145	Medium
Relationship of growth and developmental characteristics of children to learning and instruction (Relationship of growth and development to learning)	6	.4116	Medium

Table 6 (continued)

Knowledge of curriculum organization and trends, school/classroom organizational patterns, and their applications to learning and instruction (Organizational patterns)	6	.1657	High
Knowledge of basic concepts and principles of learning and their relationship to instruction (Principles of learning)	6	.3930	High
Knowledge of the impact of social-cultural variables on learning and instruction (Social/cultural impact on learning)	5	.3870	High
Knowledge of the social system of the classroom, its implications for learning, and of the impact of teacher characteristics upon learning (Social system of classroom)	5	.5837	Medium
Knowledge of current strategies and theories of teaching and approaches to instruction (Theories of teaching)	5	.5955	Medium
Knowledge of appropriate ways of maintaining classroom control and ways of dealing with behavioral problems (Controlling behavioral problems)	8	.5874	Medium

Table 6 (continued)

Approaches to the development of concepts and of intellectual skills and abilities (Approaches to concept and skill development)	10	.4323	Medium
Applications of concepts and principles of learning and teaching to specific instructional problems (Learning principles specifically applied)	13	.3597	High
Applications of principles of evaluation to daily instructional procedures (Daily evaluation)	4	.5621	Medium
Characteristics and roles of various kinds of tests (Kinds of tests)	7	.4309	Medium
Knowledge and use of basic statistical terms (Statistics)	6	.4435	Medium
Reporting pupil progress to parents (Reporting progress)	3	.4123	Medium
PROFESSIONAL EDUCATION SUBDIVISION	110	.4314	Medium

*This subdivision is weighted 4.0 in determining WCET.

and professional relationships (.5145), with five items; Daily evaluation (.5621), with four items; Social system of the classroom (.5837), with five items; Controlling behavioral problems (.5874), with eight items; and Theories of teaching (.5955), with five items. None of the content areas of the Professional Education subdivision were of low difficulty level. In determining a student's WCET score, the subdivision Professional Education is weighted 4.0.

Written English Expression. The forty-five items in the Written English Expression subdivision were grouped under content headings outlined by Educational Testing Service. A difficulty coefficient was computed for the Written English Expression subdivision and for each of the two content areas of that section, as indicated in Table 7. High difficulty was a mean difficulty coefficient of less than .40. Medium difficulty was a mean difficulty coefficient of .40 or greater, but less than .60. Low difficulty was a mean difficulty coefficient of .60 or greater.

Analysis of the data, as depicted in Table 7, indicated that the subdivision Written English Expression (.4104) was of medium difficulty level. The content area "Usage," with twenty-five questions, had a mean difficulty coefficient of .4616, which indicated medium difficulty. The content area "Sentence correction," with twenty questions, had a mean difficulty coefficient of .3591, which indicated high difficulty. None of the content areas of the Written English Expression subdivision were of low difficulty. In determining a student's WCET score, the subdivision Written English Expression is weighted 1.0.

Table 7

Summary of Number of Items, Mean Difficulty Coefficients, and Difficulty Levels of the Content Areas for the Written English Expression Subdivision of the Common Examinations of the NTE*

Content Area	No. Test Items	Mean Diff. Coeff.	Level of Difficulty
Usage	25	.4616	Medium
Sentence correction	20	.3591	High
WRITTEN ENGLISH EXPRESSION SUBDIVISION	45	.4104	Medium

*This subdivision is weighted 1.0 in determining WCET.

Literature, Fine Arts, and Social Studies. The sixty-five items in the Literature, Fine Arts, and Social Studies subdivision were grouped under content headings outlined by Educational Testing Service. Mean difficulty coefficients were computed for the Literature, Fine Arts, and Social Studies subdivision and for the content areas of that section of the Common Examinations, as indicated in Table 8. High difficulty was a mean difficulty coefficient of less than .40. Medium difficulty was a mean difficulty coefficient of .40 or greater, but less than .60. Low difficulty was a mean difficulty coefficient of .60 or greater.

Analysis of the data for the Literature, Fine Arts, and Social Studies subdivision indicated that the Literature, Fine Arts, and Social Studies subdivision (.3870) and the following content areas, with the number of items in each area, were of high difficulty level:

Table 8

Summary of Number of Items, Mean Difficulty Coefficients, and
Difficulty Levels of the Content Areas for the
Literature, Fine Arts, and Social Studies
Subdivision of the Common
Examinations of the NTE*

Content Area	No. Test Items	Mean Diff. Coeff.	Level of Difficulty
Literature	20	.3973	High
Music	6	.5447	Medium
Art	9	.5884	Medium
American history	5	.2928	High
World history	5	.3075	High
Geography	5	.4053	Medium
Sociology	5	.5983	Medium
Political science	5	.0914	High
Economics	5	.2571	High
LITERATURE, FINE ARTS, AND SOCIAL STUDIES SUBDIVISION	65	.3870	High

*This subdivision is weighted 2.5 in determining WCET.

Literature (.3973), with twenty items; Political science (.0914), with five items; Economics (.2571), with five items; American history (.2928), with five items; and World history (.3075), with five items. The following content areas, with the number of items in each area, were of medium difficulty: Geography (.4053), with five items; Music (.5447), with six items; Art (.5884), with nine items; and Sociology (.5983), with five items. None of the content areas in the Literature, Fine Arts, and Social Studies subdivision were of low difficulty level. In determining a student's WCET score, the subdivision Literature, Fine Arts, and Social Studies is weighted 2.5.

Science and Mathematics. The fifty items in the Science and Mathematics subdivision were grouped under content headings outlined by Educational Testing Service. Mean difficulty coefficients were computed for the Science and Mathematics subdivision and for the content areas of this section of the Common Examinations, as indicated in Table 9. High difficulty was a mean difficulty coefficient of less than .40. Medium difficulty was a mean difficulty coefficient of .40 or greater, but less than .60. Low difficulty was a mean difficulty coefficient of .60 or greater.

Analysis of the data for the Science and Mathematics subdivision as depicted in Table 9, indicated that only two content areas were of high difficulty level: Astronomy (.3527), with two items; and Elementary algebra (.3587), with six items. The subdivision Science and Mathematics (.4930) and the following content areas, with the number of items in each area, were of medium difficulty level: Biology (.5705), with eight items; Chemistry (.5645), with

Table 9

Summary of Number of Items, Mean Difficulty Coefficients, and
Difficulty Levels of the Content Areas for the Science
and Mathematics Subdivision of the Common
Examinations of the NTE*

Content Area	No. Test Items	Mean Diff. Coeff.	Level of Difficulty
Astronomy	2	.3527	High
Biology	8	.5705	Medium
Chemistry	7	.5645	Medium
Geology	3	.4747	Medium
Physics	7	.4168	Medium
Meteorology	3	.6063	Low
Arithmetic operations	2	.6824	Low
Simple arithmetic word problems	7	.4779	Medium
Measurement	5	.4257	Medium
Elementary algebra	6	.3587	High
SCIENCE AND MATHEMATICS SUBDIVISION	50	.4930	Medium

*This subdivision is weighted 2.5 in determining WCET.

seven items; Geology (.4747), with three items; Physics (.4168), with seven items; Simple arithmetic word problems (.4779), with seven items; and Measurement (.4257), with five items. Meteorology (.6063), with three items, and Arithmetic operations (.6824), with two items, were of low difficulty level. In determining a student's WCET score, the subdivision Science and Mathematics is weighted 2.5.

Analysis of the Performance of Louisiana's Potential Teachers on the NTE Common Examinations

This section fulfilled the second purpose of this study: to analyze the performance of Louisiana examinees of the Common Examinations of the NTE. The following subdivisions were utilized for the presentation of data for this section: (1) Null Hypothesis One; (2) Null Hypothesis Two; and (3) Null Hypothesis Three.

Null Hypothesis One

Null Hypothesis 1 stated: there is no significant difference between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations in each of the following:

- a. Weighted Common Examinations Total;
- b. Professional Education subdivision;
- c. Written English Expression subdivision;
- d. Literature, Fine Arts, and Social Studies subdivision;
- e. Science and Mathematics subdivision.

The national mean and the national standard deviation on Form K-ANT of the Common Examinations were provided by Educational

Testing Service. The means of Louisiana's students' scores were computed for the WCET and for the four subdivisions of the Common Examinations. Comparisons were made between the national scores and Louisiana's scores in each of the four areas of the Common Examinations and the WCET composite scores, as indicated in Table 10. This comparison was made using a z test of significance.

Null Hypothesis 1-A. Null Hypothesis 1-A stated that there is no significant difference between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations on the Weighted Common Examinations Total.

Analysis of the data indicated that for the WCET composite score, the national mean was 560.55. The Louisiana mean on the WCET was 562.35. A z score of 1.07 was found. Since a z score of 1.96 or greater was required for significance at the .05 level, Null Hypothesis 1-A was accepted.

Null Hypothesis 1-B. Null Hypothesis 1-B stated that there is no significant difference between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations in the Professional Education subdivision.

Analysis of the data indicated that for the Professional Education subdivision, the national mean was 223.20. The Louisiana mean on the Professional Education subdivision was 238.48. A z score of 2.52 was found. A z score of 1.96 or greater was required for significance at the .05 level. Therefore, Null Hypothesis 1-B was rejected.

Table 10

Summary of Means and Z Scores of the 1979 National Scores and
1979 Louisiana Scores on Form K-ANT of the Common
Examinations of the NTE and Its
Subdivisions*

Content Area	National Mean	Louisiana Mean	<u>Z</u> Score	p**
Professional Education	223.20	238.48	2.52	.05
Written English Ex- pression	56.10	59.57	1.48	n/s
Literature, Fine Arts, and Social Studies	141.00	143.14	.46	n/s
Science and Mathema- tics	140.25	121.16	-3.72	.0002
WCET	560.55	562.35	1.07	n/s

*Scores reported in Weighted Form

**A z score ≥ 1.96 was required for significance at the .05 level.

Null Hypothesis 1-C. Null Hypothesis 1-C stated that there is no significant difference between the mean score of Louisiana's students and the mean national norms on a given form of the Common Examinations in the Written English Expression subdivision.

Analysis of the data indicated that for the Written English Expression subdivision, the national mean was 56.10. The Louisiana mean on the Written English Expression subdivision was 59.57. A z score of 1.48 was found. Since a z score of 1.96 or greater was required for significance at the .05 level, Null Hypothesis 1-C was accepted.

Null Hypothesis 1-D. Null Hypothesis 1-D stated that there is no significant difference between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations in the Literature, Fine Arts, and Social Studies subdivision.

Analysis of the data indicated that for the Literature, Fine Arts, and Social Studies subdivision, the national mean was 141.00. The Louisiana mean on the Literature, Fine Arts, and Social Studies subdivision was 143.14. A z score of .46 was found. Since a z score of 1.96 or greater was required for significance at the .05 level, Null Hypothesis 1-D was accepted.

Null Hypothesis 1-E. Null Hypothesis 1-E stated that there is no significant difference between the mean scores of Louisiana's students and the mean national norms on a given form of the Common Examinations in the Science and Mathematics subdivision.

Analysis of the data indicated that for the Science and Mathematics subdivision, the national mean was 140.25. The Louisiana mean on the Science and Mathematics subdivision was 121.16. A z score of -3.72 was found. A z score of 1.96 or greater was required for significance at the .05 level. Therefore, Null Hypothesis 1-E was rejected.

Null Hypothesis Two

Null Hypothesis 2 stated: there is no significant difference in the number of items that discriminate between the high group and the low group among the following subdivisions:

- a. Professional Education;
- b. Written English Expression;
- c. Literature, Fine Arts, and Social Studies;
- d. Science and Mathematics.

From the item analysis, a mean discrimination index for each item, content area, and subdivision was calculated by means of the phi coefficient of correlation, which represented the discrimination index of the item, content area, or subdivision. The phi coefficients were internally determined in the computer program, and any coefficient whose discrimination index (phi coefficient) was .40 or higher was determined to be significant at the .05 level. This index was converted to nominal level data in terms of whether the item significantly discriminated or did not significantly discriminate. A comparison of the number of items which discriminated between the high group and the low group, as indicated in Table 11, was made among the areas of the Common Examinations using the Chi Square analysis for independent samples.

Table 11

Contingency Table Summary of Analysis of the Number of
Discriminatory Items Among the Subdivisions of the
Common Examinations of the NTE

Content Area	Number Items						Total Chi Square	p*
	Sign. Disc.			Not Sign. Disc.				
	O	E	χ^2	O	E	χ^2		
Professional Education	39	44	.57	71	66	.38		
Written English Expression	22	18	.89	23	27	.59		
Literature, Fine Arts, and Social Studies	25	26	.04	40	39	.03		
Science and Mathematics	22	20	.20	28	30	.13		
							2.826	n/s*

*A Chi Square coefficient ≥ 7.815 , with three degrees of freedom,
was required for significance at the .05 level.

Analysis of the data indicated that the Professional Education subdivision had 39 items which discriminated (Chi Square .57) and 71 items which did not discriminate (Chi Square .38). Written English Expression had 22 items which discriminated (Chi Square .89) and 23 items which did not discriminate (Chi Square .59). Literature, Fine Arts, and Social Studies had 25 items which discriminated (Chi Square .04) and 40 items which did not discriminate (Chi Square .03). Science and Mathematics had 22 items which discriminated (Chi Square .20) and 28 which did not discriminate (Chi Square .13). With three degrees of freedom, a total Chi Square coefficient of 7.815 or greater was required for significance at the .05 level. The total Chi Square coefficient of this analysis was 2.826, which was not significant at the .05 level. Therefore, Null Hypothesis 2 was accepted.

Null Hypothesis Three

Null Hypothesis 3 stated: there is no significant difference in the number of high difficulty items, medium difficulty items, and low difficulty items among the following subdivisions:

- a. Professional Education;
- b. Written English Expression;
- c. Literature, Fine Arts, and Social Studies;
- d. Science and Mathematics.

From the item analysis, a mean difficulty coefficient was calculated for each item, content area, and subdivision of the Common Examinations. High difficulty was determined to be a mean difficulty coefficient of less than .40. Medium difficulty was determined to be a mean difficulty

coefficient of .40 or greater, but less than .60. Low difficulty was a mean difficulty coefficient of .60 or greater. This difficulty level was converted to nominal level data in terms of the number of items of high difficulty, the number of items of medium difficulty, and the number of items of low difficulty. A comparison of the number of high, medium, and low difficulty items was made among the areas of the Common Examinations, as indicated in Table 12.

Analysis of the data indicated that the Professional Education subdivision had 49 high difficulty items (Chi Square .02), 35 medium difficulty items (Chi Square .28), and 26 items of low difficulty (Chi Square .14). Written English Expression had 22 items of high difficulty (Chi Square .05), 15 items of medium difficulty (Chi Square .31), and 8 items of low difficulty (Chi Square .82). Literature, Fine Arts, and Social Studies had 35 items of high difficulty (Chi Square .83), 14 items of medium difficulty (Chi Square 1.32), and 16 items of low difficulty (Chi Square 0.10). Science and Mathematics had 17 items of high difficulty (Chi Square 1.57), 15 items of medium difficulty (Chi Square 0.00), and 18 items of low difficulty (Chi Square 3.00). With six degrees of freedom, a total Chi Square coefficient of 12.592 or greater was required for significance at the .05 level. The total Chi Square coefficient of this analysis was 8.322, which was not significant at the .05 level. Therefore, Null Hypothesis 3 was accepted.

Table 12

Contingency Table Summary of Analysis of the Number of High, Medium, and Low Difficulty Items Among the Subdivisions of the Common Examinations of the NTE

Content Area	Number Items									Total Chi Square	p [†]
	High Diff.			Medium Diff.			Low Diff.				
	O	E	X ²	O	E	X ²	O	E	X ²		
Professional Education	49	50	.02	35	32	.28	26	28	.14		
Written English Expression	22	21	.05	15	13	.31	8	11	.82		
Literature, Fine Arts, and Social Studies	35	30	.83	14	19	1.32	16	16	0		
Science and Mathematics	17	23	1.57	15	15	0	18	12	3.00		
										8.322	n/s [†]

*A Chi Square coefficient ≥ 12.592 , with six degrees of freedom, was required for significance at the .05 level.

Conclusions

The following conclusions are drawn as a result of the analysis and presentation of data relative to the research questions posed in this investigation of the performance of Louisiana's potential teachers on the Common Examinations of the National Teacher Examinations (NTE):

1. The performance of Louisiana's potential teachers on the Weighted Common Examinations Total of the NTE compares favorably with the national performance.
2. The performance of Louisiana's students on the Professional Education, Written English Expression, and Literature, Fine Arts, and Social Studies subdivisions compares favorably with the national performance. Louisiana's students' performance on the Professional Education subdivision significantly exceeds the national average performance on that subdivision of the Common Examinations.
3. Louisiana's students show a deficiency in concepts and skills measured by the Science and Mathematics content areas of the NTE Common Examinations when compared to national norms. This deficiency is a result of a deficiency in Science preparation rather than a deficiency in Mathematics preparation.
4. The NTE Common Examinations does not effectively discriminate for Louisiana's examinees in the four subdivisions of the Common Examinations.
5. Neither the Professional Education or Written English Expression subdivisions nor any of their content areas differentiate between potential teachers with high test scores and those with low test scores.

6. The subdivision Literature, Fine Arts, and Social Studies does not differentiate between potential teachers with high test scores and those with low test scores. However, the items in the content areas of Literature and Music are effectively discriminating between high and low test scorers.

7. The subdivision Science and Mathematics does not differentiate between potential teachers with high test scores and those with low test scores. However, the Mathematics content areas are effectively discriminating between high and low test scorers.

8. In the Professional Education subdivision, Louisiana's prospective teachers experience difficulty in responding to items in the content areas concerning history, learning principles, influence of social variables, and organizational patterns.

9. In the Written English Expression subdivision, Louisiana's prospective teachers experience difficulty in responding to items in the content areas concerning sentence correction.

10. Louisiana's prospective teachers experience difficulty in responding to items in the Literature, Fine Arts, and Social Studies subdivision and in the content areas of Literature, American history, World history, Political science, and Economics.

11. In the Science and Mathematics subdivision, Louisiana's prospective teachers experience difficulty in responding to items in the content areas of Astronomy and Elementary algebra.

12. The number of test items in any subdivision of the Common Examinations does not significantly affect the discriminatory ability of that subdivision.

13. No subdivision of the Common Examinations is significantly more difficult than any other subdivision of the Common Examinations.

14. Level of difficulty of the test items does not significantly affect the discriminatory ability of the test items. .

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Appendix A

REVIEW OF RELATED LITERATURE

The National Teacher Examinations is today being used in twenty-seven states as a requirement for teacher certification, salary increment, or job retention. Some states require only that the National Teacher Examinations (NTE) be taken, requiring no particular score to be attained. Some seven states, however, require the attainment of a certain score on the NTE for certification, salary increment, or job retention. (191)

Much has been written about the NTE, the uses of the NTE, the legality of the NTE, ways to implement the NTE score requirement, the advantages of the NTE, and the dangers of the NTE. Much research has been done on the normative and concurrent and predictive validity of the NTE. As this review of literature will expose, however, no in-depth statewide research has ever been conducted in or by any state where the NTE is required, other than the validation process itself.

Articles on the NTE are numerous in number, content, and audience. There are NTE articles in statistical research journals; there are NTE articles in general education magazines; there are NTE articles in paraprofessional magazines; there are NTE pamphlets published by the creators of this examination; there are summaries or convention presentations, debates, and discussion on the NTE.

In this review of literature related to the National Teacher Examinations, the following outline was utilized: (a) Development of the National Teacher Examinations; (b) Uses and Legality of the National Teacher Examinations; (c) Louisiana and the National Teacher Examinations; (d) Statistical Research on the National Teacher Examination; (e) Item Analysis; and (f) Summary.

Development of the National Teacher Examinations

The National Teacher Examinations (NTE) was first administered in 1939 by the Cooperative Test Service. The examination was designed as a method of objectively estimating the abilities and knowledge of prospective teachers. In 1939, approximately twenty school superintendents approached the American Council on Education for assistance in improving their selection process for prospective teachers. To aid in finding a solution, the American Council on Education established the National Committee on Teacher Examinations. The Cooperative Test Service was engaged by the Committee to assume full responsibility for the preparation and validation of an examination to aid in the selection of prospective teachers. Authorities of national reputation in each field to be tested contributed directly to the construction and criticism of each element included in the examinations. Procedures used in the preparation of this examination (today known as the National Teacher Examinations) included: (a) development of outlines and specifications for each examination by the test editor in cooperation with authorities in the field; (b) preparation and editing of test items in accordance with the outline and specifications;

(c) try-out administration of the preliminary items to determine their difficulty and to detect those which might have been ambiguous or weak; (d) selection and revision of suitable items for the tentative final form by a large number of experts in teacher education, heads of departments, supervisors of teaching, and others; (f) preparation of the final form based on the criticisms and suggestions received. (94:362; 110:538)

The 1940 National Teacher Examinations, upon which format today's NTE has been developed, was constructed to cover the following areas: reasoning ability; understanding and use of the English language; general cultural information; understanding of points of views and methods of professional education; knowledge of contemporary affairs; and mastery of subject matter to be taught by the candidate. (45:354)

The Cooperative Test Service administered and scored the National Teacher Examinations from 1939 to 1950. In 1950, full responsibility for the preparation, administration, and scoring of the National Teacher Examinations was transferred to Educational Testing Service in Princeton, New Jersey. From the 1950's to today, the National Teacher Examinations has remained the definitive teacher examination in the United States. (151:2)

The National Teacher Examinations today, as it theoretically has since its creation, consists of the Common Examinations, which offers subtests in Professional Education and General Education, and the Teaching Area Examinations, which measures understanding of subject matter and methods. (150:9) Reliabilities of the Common Examinations

ranged from .80 to .90, and for the Professional Education and General Education Weighted Subtotal Scores, from .93 to .96. (143)

There are four subtests of the Common Examinations: Professional Education; Written English Expression; Social Studies, Literature, and Fine Arts; and Science and Mathematics. The Professional Education Test (110 items) measures achievement in three dimensions of professional education: psychological foundations; societal foundations; and teaching principles and practices. (143) The National Teacher Examinations is administered three times a year (in February, in July, and in November) at specified university testing centers throughout the United States. The tests are administered under controlled conditions, with a specified test administrator monitoring the examination conditions. The results of the test are reported in written and tabular forms to the examinees usually three to five weeks after the examinee has taken the test. (137)

Uses and Legality of the National Teacher Examinations

The National Teacher Examinations tests subject matter knowledge. There exists much controversy as to whether this examination also tests teaching ability. Educational Testing Service, however, stresses that, if the National Teacher Examinations be used as a certification instrument, it not be used as the sole criterion for certification. (143) Almost since its creation, however, the National Teacher Examinations has been the object of numerous lawsuits, with charges ranging from race discrimination to lack of validity as a test instrument. (74)

The first landmark case involving the use of tests for employment selection was the 1971 U. S. Supreme Court decision, Griggs v. Duke Power Company, which determined that tests must "bear a demonstrable relationship to successful performance of the jobs for which they are used." (102:108) The circumstances of this case involved an employee of Duke Power Company who was not promoted to a supervisory position because he had been unable to pass the required written examinations. The Supreme Court determined that the employee was indeed eligible for the promotion, since the required examination was not even indirectly related to the requirements of the desired supervisory position. (74:186)

The fact that the court ruled that tests must bear a "demonstrable relationship" to the job for which they are required has brought about a deluge of lawsuits involving the National Teacher Examinations and its applicability (or lack of applicability) to the requirements of the teaching profession.

The first lawsuit involving the NTE was Baker v. Columbus Municipal Separate School District in Mississippi. The Columbus School District had arbitrarily set a minimum cut-off score which was required of all teachers for job retention, regardless of whether the teacher was tenured or not. Sixty-five tenured black teachers were not rehired to teach under the 1969 Columbus School District Ruling. The non-retained teachers took the school district to court. (136:3) In 1971, the federal court ruled that the school district had misused the results of the NTE in making teacher retention and selection

decisions. The Court found that

it is unconstitutional that the National Teacher Examinations cut-off score requirement was set . . . without any investigation or study of the validity and reliability of the examination or the cut-off scores as a means of selecting teachers for hiring . . . and without consultation with the ETS. (102:109)

In ordering the reinstatement of the non-retained black faculty who had not met the cut-off score requirements, the Court noted that the NTE "measures only a fraction of the characteristics required for effective classroom performance. It does not measure manual skills, teaching aptitude, attitudes, personal characteristics, or classroom teaching performance." (124)

The case of U. S. v. Nansemond County School Board (Virginia, 1972) concerned the Nansemond County School District's requirement (established in 1970) that all teachers hired in that year--and all subsequent years--submit NTE scores. The Federal District Court found a "reasonably necessary connection between the qualities tested . . . and the actual requirements for the job to be performed." In February, 1974, the Circuit Court of Appeals reversed the District Court's decision and ordered the reinstatement of the teachers who had been discharged on the basis of the 1970 requirement. (136:4) In its decision, the Appeal Court noted that

when the ranks of black teachers in a school district with a long history of discrimination has been decimated disproportionately, an inference of discrimination is realized which shifts to the school board the burden of classifying its conduct by clear and convincing evidence. (136:4)

The Court called improper the Nansemond County Board's use of the NTE because (a) statistics confirmed that as a result of its use,

blacks were excluded from their jobs; (b) the defendants had not provided evidence that the questions posed tested knowledge essential to classroom performance; (c) no study had shown the relationship between test results and job performance requirements. (102:109)

In Carroll v. Board of the Memphis City Schools (Tennessee, 1973), however, the courts found the school district's use of the NTE reasonable and lawful. The Memphis School District had incorporated into its teaching-hiring criteria the requirement of a certain NTE score. This score requirement was set at 200 composite total. The Negro faction of the teacher faculty sued the School District, claiming that the score requirement was instigated solely in an effort to override the federally mandated integration of its faculty. (74:197) In 1973, the federal district court ruled in favor of the use of the NTE. The Court noted that in an effort to follow desegregation rulings, Memphis had begun to increase its proportion of black teachers; the Court also found that board requirements were being applied in a fair and equal manner to blacks and to whites. (136:4)

The case of U. S. v. State of North Carolina (1974) sought invalidation of North Carolina's requirement that prescribed NTE scores (minimum of 950) to be a condition for obtaining certification. The Federal Court struck down the statute as "invalid and unconstitutional to the extent that it required refusal of licensing to otherwise qualified applicants" The Court found that the state had selected a score calculated to exclude a given percentage of applicants without showing a correlation between the score and teaching competency. The Court decision, however, was clear "that

the State (sic) of North Carolina has the right to adopt academic requirements and written achievement tests" designed and validated to disclose the minimum amount of knowledge necessary to effective teaching. The ruling stated

nothing contained herein shall be deemed to prevent the state from reinstating a written test cut-off score provided that such cut-off score shall first have been validated with respect to minimum academic knowledge. (102:109; 74:197)

In U. S. v. South Carolina (South Carolina, 1977), the United States Department of Justice and others brought suit primarily challenging the state's use of the NTE for teacher certification. A federal district court ruled that South Carolina's use of the tests to certify teachers was constitutional and that the local district's use of the NTE for salary purposes was lawful under Title VII of the Civil Rights Act of 1964. The Court stated that

Neither have plaintiffs been able to establish any defect in the NTE indicating that the exams themselves discriminate on the basis of race Since we find that the NTE create[s] classifications only on permissible basis (presence or absence of knowledge or skill and ability in applying knowledge), and that they are not used pursuant to any intent to discriminate, their use in making certification decisions by the State are proper and legal. (74:198)

Educational Testing Service conducted a study of the validity of the National Teacher Examinations as a vehicle for awarding teacher certification in South Carolina. According to the federal district court, the study's findings indicated that the tests are "a fair measure of the knowledge which teacher education programs in the state seek to impart." The Court found that

There is ample evidence in the record of the content validity of the NTE The NTE . . . [has] demonstrated the ability to provide a useful measure of the extent to which prospective teachers have mastered the content of their teacher program. (136:4)

Louisiana and the NTE

Following the examples of Alabama, Mississippi, California, North Carolina, and South Carolina, Louisiana began in November, 1978, requiring a minimum composite score on the National Teacher Examinations as one of the criteria for teaching certification. (142)

In 1978, in compliance with the directive of Act 16 of the 1977 Extraordinary Session of the Louisiana Legislature, Louisiana's State Department of Education determined the requirements of the testing mandate for Teacher Certification in Louisiana. The test selected was the National Teacher Examinations, which was validated for Louisiana using the validation process outlined and legitimized in the state of South Carolina. (70:30)

The composite score required for initial teacher certification ranged from 1,052 to 1,202, depending upon the area major. For examinees whose major field of study provided no Area Examinations, the minimum score on the Common Examinations was 534. The minimum composite score was determined to be at the second standard unit below the mean for all majors except English, which was at the first standard unit below the mean. (139:86)

A curriculum validation study was conducted by Educational Testing Service in order (1) to determine the relationship between the content of the test and the content of teacher education programs within the state, and (2) to determine the level of performance on the National Teacher Examinations that might be expected of a candidate who was judged to have the minimum amount of knowledge necessary to complete an academic program in Louisiana and to teach effectively in the public schools. (70:30)

The basic design for this validation study was a jury judgment approach. Through this method, judgments were systematically obtained, recorded, and analyzed from approximately 500 college faculty with teaching experience in Louisiana. These judges, nominated by the twenty-two teacher education institutions in the state, were grouped into panels or juries to consider specific parts of the overall comparisons and assessments required by the design. In most instances, faculty members served on a Content Review Panel or a Knowledge Estimation Panel, and reviewed one test from the National Teacher Examinations. The Content Review Panels evaluated the congruence between the content of the National Teacher Examinations and the curriculum prescribed for teacher education programs in the state. The Knowledge Estimation Panels estimated the minimal percentage of candidates who would be expected to know the answer to each specific question on the National Teacher Examinations. (139:54)

All test studies in Louisiana, except Art and Industrial Arts, were judged to be sufficiently congruent with the content of teacher education programs in Louisiana. Based on the findings of the validation study, the relationships of specific tests to the teacher education curriculum were as follows:

Composite Score to be Achieved
for Certification in Louisiana

Very Closely Related

Biology and General Sciences	1154
Business Education	1178
Education in the Elementary School	1131
Mathematics	1202
Social Studies	1149
Spanish	1124

Closely Related

Chemistry, Physics, and General Science	1114
Early Childhood Education	1100
Education of the Mentally Retarded	1140
German	1091
Home Economics Education	1101
Media Specialist--Library and Audio Visual	1148
Music Education	1120
Physical Education	1135

Reasonably Related

Agriculture	1078
English Language and Literature	1052
French	1108
Speech--Communication and Theatre	1126

Probably Related

Art Education	Commons Only	534
Industrial Arts Education	Commons Only	534 (139:186)

Statistical Research on the
National Teacher Examinations

Of the vast amount of research conducted on the scores of the National Teacher Examinations, very little has been conducted using exclusively Louisiana's scores. Andrews (36) conducted a study in Louisiana to determine if the NTE was useful for the identification of prospective teachers. Examined were the relationships among undergraduate grade point averages, student teaching performance, and NTE scores for 269 students at Louisiana State University who had completed student teaching and had voluntarily taken the NTE between 1975 and 1978. The data included the students' overall grade point averages, the NTE scores (all totals and subtotals), the supervising teachers' ratings of student teachers, the teaching level, and the sex of the

examinees. Pearson product-moment correlation coefficients were calculated.

For elementary students, a highly significant relationship ($p > .001$) was found between the weighted common scores and the grade point averages. Significant relationships ($p > .05$) were found between the weighted common scores and three student teaching performance item ratings: appearance, enthusiasm, and English usage.

For secondary English majors who took the English Literature and Language Area Examination, significant relationships ($p > .05$) were found (1) between the NTE Weighted Scores and the examinees' subject-matter knowledge as rated in student teaching; (2) between the Weighted Common Examinations Total (WCET) scores and the supervisors' rating of overall student teaching; and (3) between the WCET scores and the examinees' cumulative grade point averages. (36:358-359)

Andrews concluded that the NTE is a measure of subject-matter knowledge primarily, and is a more accurate measure of secondary subject-matter knowledge than of primary (elementary). This, Andrews concluded, was the only contribution the NTE made to the identification of prospective teachers in Louisiana. (36:359)

A correlational study was conducted by Thacker to determine if scores on the NTE, academic averages, and supervisory ratings were valid evidence for establishing standards of academic and professional preparation as a basis for assessing the degree of preparation of teachers. Teachers' scores on the NTE were correlated with the following measures of teacher preparation and effectiveness:

(1) principals' ratings; (2) supervisors' ratings; and (3) grade point averages of teachers. (203)

A sample of 600 college seniors at North Carolina University was drawn. All in the sample had student taught in North Carolina subsequent to graduation and certification. Data collected included (1) seven examination scores (Professional Education score; Written English Expression score; Literature, Fine Arts, and Social Studies score; Science and Mathematics score; WCET; Area Examination score; and total composite score); (2) academic averages; (3) an estimate of the candidate's potential as a teacher; and (4) an estimate of student teaching performance.

The results of the study indicated that neither scores on the NTE, academic averages, nor supervisors' ratings were efficient in predicting the quality of teaching performance. Thacker concluded that little weight could be given to the NTE scores to assess the performance of teachers. Race, sex, type of degree, and level of certification were significantly correlated with NTE scores and supervisory rating. (203:84) Studies by Simpson (199) and Eissey (180) have substantiated the findings of this study.

The purpose of Shea's study (198), primarily, was to determine what predictors could best predict teaching ability in the classroom. A Pearson product-moment correlation matrix was formed from the following eight measures of 100 graduates of Worcester State Teacher College: (1) NTE Common Examinations scores; (2) American Council on Education Psychological Examination, total score; (3) Cooperative English Examination, total score; (4) Cooperative General Culture Test,

total score; (5) Cooperative Contemporary Affairs Test, total score; (6) student teaching grade; (7) undergraduate grade point average; and (8) ratings on M-Blank (at the end of the first year's teaching) by either superintendents, principals, or supervisors.

The results of this analysis indicated that undergraduate grade point average was the best predictor of teacher success, having the highest correlation with the criterion of teaching success (M-Blank $r = .50$). The NTE was the next best predictor of teaching success ($r = .45$). In addition, the NTE was moderately correlated with the Cooperative General Culture test ($r = .77$), with the ACE Psychological exam ($r = .70$), with the Cooperative English test ($r = .64$), with the Cooperative Contemporary Affairs test ($r = .64$), and with the undergraduate grade point average ($r = .52$). The NTE was not closely associated with practice teaching grades, nor was undergraduate grade point average associated with practice teaching grades. (198:89)

Only one research study has been conducted exclusively to determine if the National Teacher Examinations is racially biased. Medley and Quirk (132) conducted a study of 500 randomly selected seniors to determine the relationship between the cultural content of special sets of general cultural test items and the performance of blacks and whites on these experimental items.

The experiment required the construction of two special forms of the NTE. Items were written to provide sixty experimental items: one-third of the items reflecting black culture rather than "traditional culture"; one-third of the items reflecting "modern" (nonblack culture) rather than traditional; and one-third of the items reflecting traditional culture items. A special form of the examination was

printed, which differed from the regular form only in that enough of the sixty-five "general culture" items were replaced by experimental items to make a set of sixty items. Selected examination centers were supplied with an experimental form of the test instead of the regular form. An observer noted whether the examinees were black or white. Comparisons were made by means of an extension of an analysis of variance of candidates by items. In each analysis, the sum of squares for candidates was partitioned into two portions, one measuring between-groups variation and the other measuring within-group variation. The results of this study indicated that how well black candidates do on an examination of general cultural items in comparison to white candidates depends to a considerable extent on whether the items refer to black personalities and other concerns of black Americans or not. The average black candidate in this population would score 4.4 points higher on a test of black items, and 11.4 points lower on a test of traditional items than would the average white candidate. A change-over from traditional items to black items would increase the black's score relative to the white's by 17.8 points, or over 27 percent. The results of this study were consistently found, whether candidates were male or female, in the North or in the South, or in rural or urban areas. (132:26)

Mills and Hemphill (133) conducted a study to determine if teachers who have been in continuous service for several years would score lower on the Common Examinations than would teachers who were tested near the end of their pre-service teacher education programs. A group of teachers who had taken the Common Examinations in South Carolina for the purpose of certification in the year 1953 and another

group who had taken the examinations in 1958 were identified. The sample consisted of 155 teachers who had been graduates in 1953 and 246 teachers who had been graduates in 1958. Each group submitted to reexamination on the Common Examinations on February 15, 1964. The results of this research indicated that teachers who were tested years after completion of their teacher training curricula were scoring higher than they had previously scored. (133:33)

Item Analysis

The item analysis technique has been used in a number of studies. An item analysis, similar in purpose to this study, was conducted on an achievement testing program for the hearing-impaired student. Item analysis was made of the results of a national achievement testing program of nearly 19,000 primary and secondary school hearing-impaired students enrolled in special educational programs in the Spring of 1971. The testing instrument was the Stanford Achievement Test Series (Form W). Individual test items or descriptions of the academic information each item purported to measure were available. Analysis of the results showed a trend for students to do well on items measuring mechanical skills of reading and writing, but not on items measuring overall reading comprehension and inferential understanding of paragraphs. (146)

Orton explored the feasibility of using an item-analysis approach for the evaluation of an innovative ninth-grade curriculum. A pool of test items was developed, for each of the three units to be evaluated, by examining English textbooks and teachers' guides, and by writing items that represented the major outcomes expected of each

of the units--satire, uses of language, and syntax and rhetoric of the sentence. All of the items in the pool were administered to experimental and control groups, and the results compared with the results of a criterion test (a few representative items given to a reasonably large sample of students). The study concluded that the item pool approach provided more useful information for the curriculum builder than the criterion-referenced test approach and suggested further refinements to make the pool approach more usable as a major means of curriculum evaluation. This study resulted in the Nebraska English Examination. (148)

The Manpower Administration conducted an item analysis and selection of testing forms in order to (1) investigate the potential bias against geographical, age, sex, or minority groups of the Basic Occupational Literacy Test (BOLT); (2) assure compatibility in the composition, reliability, and difficulty of alternate forms; and (3) set an optimum test length. Experimental BOLT forms were constructed using revised directions, items, and time allowances from a preliminary tryout. Two alternate forms for the four test content areas, at each of four difficulty levels, were used in an item analysis study. The General Educational Development ratings were used for interpreting BOLT scores. Interim occupational norms were derived from 22 percent of each of the reading and arithmetic samples tested for the BOLT item analysis. (130)

Summary

Research supports the use of the item analysis to determine curricula strengths and weaknesses, and is therefore an applicable

technique to determine the curricula strengths and weaknesses of Louisiana's potential teachers on the National Teacher Examinations. The NTE is not a new phenomenon. This test has been administered to potential teachers since 1940. The National Teacher Examinations is a measure of subject-matter knowledge. Much debate exists over whether the NTE is an accurate measure of teaching ability in the classroom. Educational Testing Service warns against using the NTE as the sole criterion for teacher certification. Numerous lawsuits have arisen from the use (or misuse) of the NTE for certification. The Courts have upheld the use of the NTE as one criterion for teacher certification only if a validation study has been conducted for each state where the NTE scores are a portion of the certification requirements.

Research indicates that there are significant positive correlations between the NTE scores and one's grade point average (whether in major field or overall grades); and, as one study has indicated, there is some correlation between the NTE score and teaching success in the classroom as measured by the M-Blank. No significant correlations, however, exist between the NTE score and the student teaching grade. Research also indicates that race is an important variable in an examinee's score on the NTE, especially on the General Culture questions of the Common Examinations. Contrary to popular belief, however, years of teaching experience do not lower an examinee's score on the NTE.